

JC10 Rec'd PCT/PTO 13 MAR 2002

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of :

Kari-Anne LETH-OLSEN et al. :

Attn: BOX PCT

Serial No. NEW :

Docket No. 2002\_0350A

Filed March 13, 2002 :

SINGLE STAGE SEED POLYMERISATION  
FOR THE PRODUCTION OF LARGE  
POLYMER PARTICLES WITH A NARROW  
SIZE DISTRIBUTION

[Corresponding to PCT/NO00/00297

Filed September 11, 2000]

P4  
/ A  
/ APRELIMINARY AMENDMENT

Assistant Commissioner for Patents,  
Washington, DC 20231

Sir:

Please amend the above-identified application as follows:

IN THE SPECIFICATION

Please rewrite the paragraph on page 4, lines 4-7 as follows:

A<sub>1</sub> In order to describe prior art techniques in this field, reference will be made to the following patent specifications: NO 142082, NO 143403, NO 149108, NO 170730, NO 961625 (WO 97/40076), US 4,091,054, EP 0326383, EP 448391, US 4,382,124, EP 0 903 579 A1 and US 5,130,343.

Please insert the following paragraphs on page 5, between lines 10 and 11:

A<sub>2</sub> EP 0326383 discloses a seeded polymerisation wherein the start particles are dispersed in an organic solvent in which also the monomer is dissolved. The organic solvent is miscible with water. The process is characterised in that the solubility of the monomer in the solvent is reduced thereby

CONT

forcing the monomer into the start particles. Different means of reducing the solubility of the monomer in the solvent are described. It can be done by increasing the water concentration, by reducing the temperature, by adding water via a semipermeable membrane or by reducing the solvent concentration by evaporation.

Obvious disadvantages of this process are the use of large amounts of organic solvent and the need for measures to absorb the monomer into the start particles. The use of organic solvent will also to a large extent limit the versatility of this process to produce porous particles.

EP 448391 discloses a seed polymerisation using iterative steps to increase the particles size to the desired final particle size. Monomer is dosed in a strict controlled manner so the amount of free monomer in the system always is less than 10% of the amount of polymer present at any time during the polymerisation reaction. It is stated that if the amount of free monomer exceeds 10% there will be coagulation problems or there may be new formation of small particles which is highly undesirable. This gives a strong limitation of the process and it will never be possible to swell the polymer more than 1 time its own volume with new monomer. The total increase in diameter that is possible is 10 times. When, in addition, the start particles always are small (less than 2 microns are disclosed) a lot of iterative steps are necessary to achieve particles in the size range 10 to 50 microns.

#### IN THE CLAIMS

Cancel, without prejudice to the subject matter involved, claims 1-10. ✓

Please add new claims 11-31 as follows:

A<sub>3</sub> 11. (New) A procedure for producing spherical polymer particles with a narrow size distribution, i.e. with a CV of less than 35%, preferably less than 20%, in the range between 5 and 100 µm by free radical polymerisation of vinyl monomers in water, characterised in that the polymerisation is performed as a one-step seed polymerisation wherein all of the monomer is added directly to the start particles which consist of a non-cross-linked polymer produced by a dispersion